Siemens Medical Solutions
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DICOM Conformance Statement

Product details:

Product type:
Data Analysis Software, Ultrasound
Image Management Software

Product Name:
syngo® Ultrasound Workplace 2.0

Manufacturer:

Siemens Medical Solutions USA, Inc.
Ultrasound Division
1230 Shorebird Way
Mountain View, Ca 94039

Used standards:

ACR-NEMA Digital Imaging and Communications in Medicine, DICOM V3.0

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1 Introduction

This document describes the conformance of the *syngo* US Workplace 2.0 product to the ACR-NEMA DICOM standard and satisfies the DICOM requirement for a vendor conformance specification. It is intended to provide the reader with the knowledge of how to integrate this product within a DICOM compliant hospital network.

1.1 Intended Audience

The reader of this document is involved with design of medical software or medical system integration. We assume that the reader is familiar with the DICOM 3.0 standard terminology and concepts. It is recommended for readers not familiar with DICOM 3.0 terminology that they read the DICOM specification (referenced below) prior to reading this conformance statement.

This conformance statement is intended to facilitate the communication with other imaging equipment. However, it does not guarantee by itself the inter-operation of the connection. The integration of any device into a system of interconnected devices goes beyond the scope of the DICOM 3.0 standard and this conformance statement when interoperability is desired. It is the user's responsibility to analyse the applications requirements and to develop a solution that integrates the *syngo* US Workplace 2.0equipment with other vendors' systems. It is also the user's task to validate the complete range of communication possibilities between the *syngo* Ultrasound Workplace equipment and the devices to be connected to.

The *syngo* US Workplace 2.0 product will follow the evolution of the DICOM 3.0 standard. This evolution may require changes to devices that have implemented DICOM 3.0. To guarantee future interoperability, the user should ensure that any provider connecting with *syngo* US Workplace 2.0 devices will follow future evolution of the DICOM standard.

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1.2 Acronyms, Abbreviations

The following acronyms and abbreviations are used in this document:

ACR	American College of Radiology
AE	Application Entity
DICOM	Digital Imaging and Communications in Medicine
FSC	File-set Creator
FSR	File-set Reader
FSU	File-set Updater
GUI	Graphic User Interface
NEMA	National Electrical Manufacturers Association
PDU	Protocol Data Unit
SCU	Service Class User
SCP	Service Class Provider
SOP	Service-Object Pair
DIMSE	DICOM Message Service Element
TCP/IP	Transmission Control Protocol/Internet Protocol
UID	Unique Identifier

1.3 References

This document is written with respect to the ACR-NEMA Digital Imaging and Communications in Medicine (DICOM) version number 3.0.

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2 Implementation model

The *syngo* US Workplace 2.0 product serves for acquiring, processing, storing and communicating medical image data. It is composed of four applications with different functionalities: The *syngo* Ultrasound Workplace 2.0 client for user interaction, the ImProof Service and the DICOM Service with real DICOM functionality, and the Server Manager to configure the *syngo* US Workplace 2.0 product. In this document, we only describe the two components ImProofService and TTDicomService.

2.1 Application Data Flow Diagram

The ImProof Service application and Dicom Service application work on the same database. Figure 2.1 shows the DICOM interface of the *syngo* US Workplace 2.0 product.

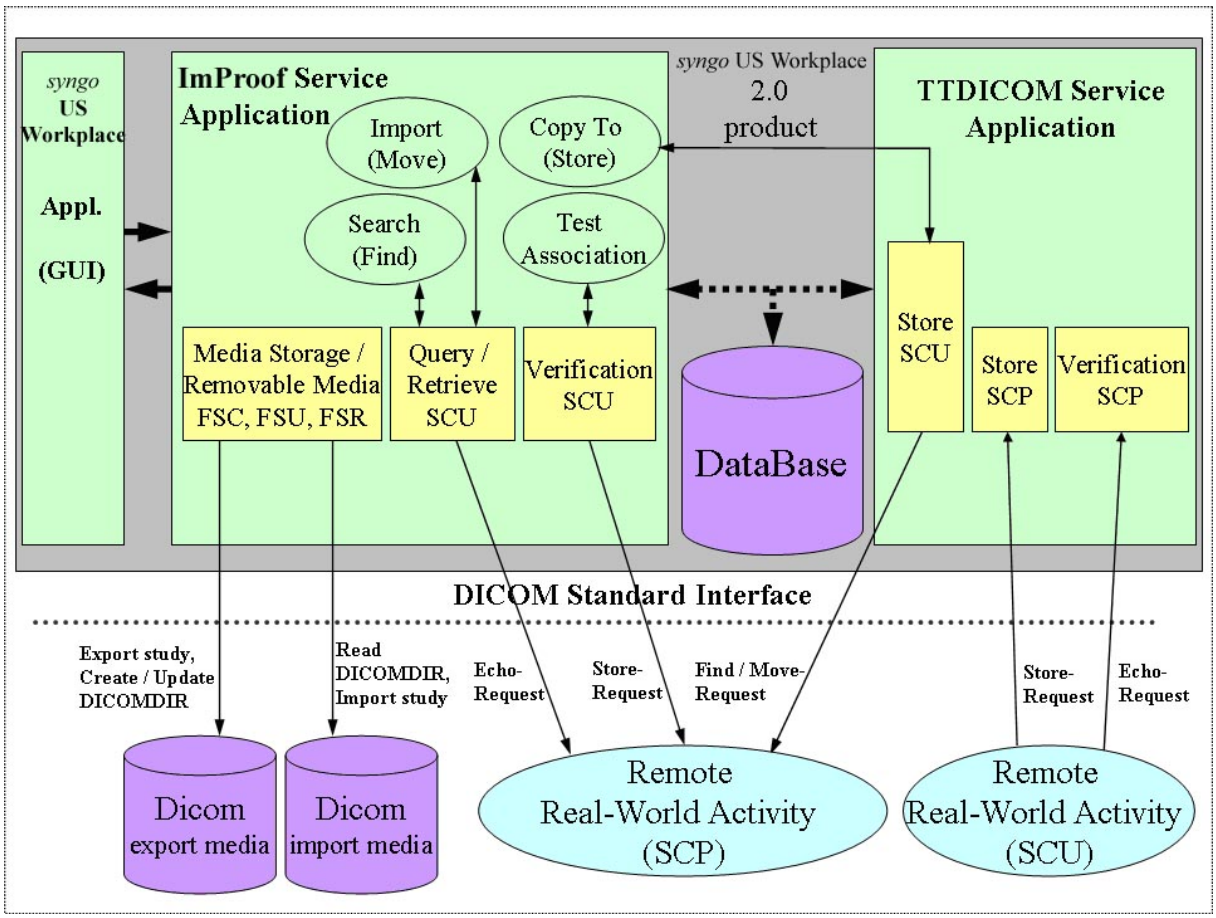

Figure 2.1 *syngo* US Workplace 2.0- DICOM Interface

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2.2 Functional Definition of AE's

The ImProof Service application implements DICOM SCU functionalities for verification and query/retrieve. It also implements DICOM Media Storage. The DICOM Service application has SCU and SCP functionalities for storage and allows verification as SCP.

The following table summarises the DICOM Services supported by *syngo* US Workplace 2.0:

DICOM (DIMSE) Service	SCU	SCP
Verification (C-ECHO)	Yes	Yes
Storage (C-STORE)	Yes	Yes
Query (C-FIND)	Yes	No
Retrieve (C-MOVE)	Yes	No

Table 2.2.1 DICOM services supported by *syngo* US Workplace 2.0

2.2.1 Verification

The ImProof Service application supports the C-ECHO DIMSE-C service as SCU. The DICOM Service application supports the C-ECHO DIMSE-C service as SCP.

2.2.2 Storage

The DICOM Service application implements the C-STORE DIMSE-C service as SCU and SCP. The SCU functionality can transmit DICOM conform files to remote devices that have STORE SCP functionality.

The Storage SCP functionality allows extracting the Patient, Study, Series, Image and Structured Report information from the received data and stores it to its database.

Note: The DICOM Service application product does not support Storage Commitment but the application can handle an N-Action Service Request.

2.2.3 Query and Retrieve

The ImProof Service application supports the C-ECHO DIMSE-C service as SCU.

Also the ImProof Service application implements the C-FIND DIMSE-C service as SCU. It is able to issue DICOM queries (C-FIND Requests) and interpret the responses coming from the foreign SCP.

The ImProof Service application implements the C-MOVE DIMSE-C service as SCU. It is able to issue DICOM move (C-MOVE) requests and interprets the move responses. It uses the DICOM Service's storage functionality to receive the required DICOM files and to store them into DB.

2.3 Sequencing of Real-World Activities

Not Applicable.

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3 AE Specifications

The *syngo* US Workplace 2.0 product AE-Title is configurable from the Server Manager application.

3.1 Media Storage

3.1.1 Associated Real-World Activity: Media Storage

The *syngo* US Workplace 2.0product is capable of importing/exporting studies to/from DICOM media. A DICOM conformant data format layer is created when a non-conformant media is specified as DICOM Media export location. A DICOMDIR is created at first study export; the existing DICOMDIR is updated at exporting further studies.

Studies can be exported by selecting the study and choosing the *Copy to DICOM and XML Format* option in the study selection dialog. If a study contains images and reports in non-DICOM format, only the DICOM images are added to the DICOMDIR. The *XML Format* file (IMProof2.xml) contains all files for the study and to be located in the same folder as the DICOMDIR.

There is a possibility to export standalone clips or images in DICOM format without exporting the whole study (right click on the image and choose *Export item to -> DICOM*). In this case only the US single frame or multi-frame image is created, without updating the DICOMDIR.

Studies can be imported from DICOM Media import locations. (Switch to the Import tab and enter a valid DICOM Media.) The list of studies contained in the DICOMDIR is read and displayed, the user can select one or more studies to be imported into the *syngo* US Workplace 2.0 database.

3.1.2 Presentation Contexts

The DICOM Media Storage functionality operates with the following SOP classes.

SOP Class	SOP Class UID
Media Storage Directory Storage SOP Class	1.2.840.10008.1.3.10
Comprehensive Structured Reports	1.2.840.10008.5.1.4.1.1.88.33
Ultrasound Multiframe Image Storage	1.2.840.10008.5.1.4.1.1.3.1
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1

Table 3.1.1 Media Storage: Supported SOP classes.

syngo US Workplace 2.0 supports the following presentation contexts in the different media storage roles.

Abstract Syntax Name and UID	Transfer Syntax Name and UID	Media Storage Role
Media Storage Directory Storage (DICOMDIR) 1.2.840.10008.1.3.10	LittleEndianExplicitTransferSyntax 1.2.840.10008.1.2.1	FSC, FSU, FSR
Comprehensive Structured Reports 1.2.840.10008.5.1.4.1.1.88.33	LittleEndianExplicitTransferSyntax 1.2.840.10008.1.2.1	FSC, FSU, FSR
Ultrasound Multiframe Image Storage	Original transfersyntax of the	FSC, FSU, FSR

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1.2.840.10008.5.1.4.1.1.3.1	multiframe image (JPEG, RLE or uncompressed)	
Ultrasound Image Storage 1.2.840.10008.5.1.4.1.1.6.1	Original transfer syntax of the image (JPEG, RLE or uncompressed)	FSC, FSU, FSR

Table 3.1.2 Media Storage: Supported Presentation Contexts.

3.1.3 SOP Specific Conformance: Media Storage

syngo US Workplace 2.0 implements the Interchange Option of the DICOM Media Storage functionality. It does not support the Directory Information Module. It can play the following roles at handling with file sets: File Set Creator (FSC) role, File Set Updater (FSU) role and File Set Reader (FSR) role.

syngo US Workplace 2.0 provides Standard Conformance to the DICOM Media Storage Service (PS.3.10). It generates and reads a File-Set under the STD-US class of Application Profiles (PS.3.11). It provides standard conformance to the SOP Classes presented in Table 3.1.1 according to the DICOM V3.0 Standard (PS.3 3).

3.2 Specification of DICOM Services

syngo US Workplace 2.0 provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCP:

3.2.1 Verification as SCU and SCP

SOP Class	SOP Class UID
Verification	1.2.840.10008.1.1

Table 3.2.1 Verification SOP class.

3.2.2 Storage as SCU and SCP

syngo US Workplace 2.0 provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCP. Several of the list's entries need to be specified in the *syngo* US Workplace 2.0 ini-file in order to configure which SOP Classes are supported.

SOP Class	SOP Class UID
AmbulatoryECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.3
BasicTextSR	1.2.840.10008.5.1.4.1.1.88.11
BasicVoiceAudioWaveformStorage	1.2.840.10008.5.1.4.1.1.9.4.1
CTImageStorage	1.2.840.10008.5.1.4.1.1.2
CardiacElectrophysiologyWaveformStorage	1.2.840.10008.5.1.4.1.1.9.3.1
ComprehensiveSR	1.2.840.10008.5.1.4.1.1.88.33
ComputedRadiographyImageStorage	1.2.840.10008.5.1.4.1.1.1
DRAFT_SRAudioStorage	1.2.840.10008.5.1.4.1.1.88.2
DRAFT_SRComprehensiveStorage	1.2.840.10008.5.1.4.1.1.88.4
DRAFT_SRDetailStorage	1.2.840.10008.5.1.4.1.1.88.3
DRAFT_SRTextStorage	1.2.840.10008.5.1.4.1.1.88.1
DRAFT_WaveformStorage	1.2.840.10008.5.1.4.1.1.9.1

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DigitalIntraOralXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.3
DigitalIntraOralXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.3.1
DigitalMammographyXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.2
DigitalMammographyXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.2.1
DigitalXRayImageStorageForPresentation	1.2.840.10008.5.1.4.1.1.1.1
DigitalXRayImageStorageForProcessing	1.2.840.10008.5.1.4.1.1.1.1.1
EnhancedSR	1.2.840.10008.5.1.4.1.1.88.22
GeneralECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.2
GrayscaleSoftcopyPresentationStateStorage	1.2.840.10008.5.1.4.1.1.11.1
HardcopyColorImageStorage	1.2.840.10008.5.1.1.30
HardcopyGrayscaleImageStorage	1.2.840.10008.5.1.1.29
HemodynamicWaveformStorage	1.2.840.10008.5.1.4.1.1.9.2.1
MRImageStorage	1.2.840.10008.5.1.4.1.1.4
NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.5
PETCurveStorage	1.2.840.10008.5.1.4.1.1.129
PETImageStorage	1.2.840.10008.5.1.4.1.1.481.1
RETIRED_NuclearMedicineImageStorage	1.2.840.10008.5.1.4.1.1.5
RETIRED_UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6
RETIRED_UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3
RETIRED_VLImageStorage	1.2.840.10008.5.1.4.1.1.77.1
RETIRED_VLMultiFrameImageStorage	1.2.840.10008.5.1.4.1.1.77.2
RETIRED_XRayAngiographicBiPlaneImageStorage	1.2.840.10008.5.1.4.1.1.12.3
RTBeamsTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.4
RTBrachyTreatmentRecordStorage	1.2.840.10008.5.1.4.1.1.481.6
RTDoseStorage	1.2.840.10008.5.1.4.1.1.481.2
RTImageStorage	1.2.840.10008.5.1.4.1.1.481.1
RTPlanStorage	1.2.840.10008.5.1.4.1.1.481.5
RTStructureSetStorage	1.2.840.10008.5.1.4.1.1.481.3
RTTreatmentSummaryRecordStorage	1.2.840.10008.5.1.4.1.1.481.7
SecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7
StandaloneCurveStorage	1.2.840.10008.5.1.4.1.1.9
StandaloneModalityLUTStorage	1.2.840.10008.5.1.4.1.1.10
StandaloneOverlayStorage	1.2.840.10008.5.1.4.1.1.8
StandaloneVOILUTStorage	1.2.840.10008.5.1.4.1.1.11
StoredPrintStorage	1.2.840.10008.5.1.1.27
TwelveLeadECGWaveformStorage	1.2.840.10008.5.1.4.1.1.9.1.1
UltrasoundImageStorage	1.2.840.10008.5.1.4.1.1.6.1
UltrasoundMultiframeImageStorage	1.2.840.10008.5.1.4.1.1.3.1
VLEndoscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.1
VLMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.2
VLPhotographicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.4
VLSlideCoordinatesMicroscopicImageStorage	1.2.840.10008.5.1.4.1.1.77.1.3
XRayAngiographicImageStorage	1.2.840.10008.5.1.4.1.1.12.1
XRayFluoroscopyImageStorage	1.2.840.10008.5.1.4.1.1.12.2
MammographyCADSR	1.2.840.10008.5.1.4.1.1.88.50
MultiframeSingleBitSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.1
MultiframeGrayscaleByteSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.2
MultiframeGrayscaleWordSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.3

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MultiframeTrueColorSecondaryCaptureImageStorage	1.2.840.10008.5.1.4.1.1.7.4
KeyObjectSelectionDocument	1.2.840.10008.5.1.4.1.1.88.59
TomTecPrivateFile	1.2.276.0.48.5.1.4.1.1.7

Table 3.2.2 Storage SOP Classes.

syngo US Workplace 2.0 provides Standard Conformance to the following DICOM V3.0 SOP Classes as an SCU:

3.2.3 Query/Retrieve as SCU

SOP Class	SOP Class UID
Patient/Study Only Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.3.1
Study Root Query/Retrieve IM Find	1.2.840.10008.5.1.4.1.2.2.1
Study Root Query/Retrieve IM Move	1.2.840.10008.5.1.4.1.2.2.2

Table 3.2.3 Storage SOP Classes.

3.2.4 Supported Transfer Syntaxes

syngo US Workplace 2.0 supports as SCU and as SCP all the above listed verification, storage and query/retrieve SOP Classes with the following transfer syntaxes, if not otherwise specified later in this document.

Transfer Syntax Name	Transfer Syntax UID
LittleEndianImplicitTransferSyntax (Uncompressed, default)	1.2.840.10008.1.2
BigEndianExplicitTransferSyntax (Uncompressed)	1.2.840.10008.1.2.2
LittleEndianExplicitTransferSyntax (Uncompressed)	1.2.840.10008.1.2.1
RLELossless	1.2.840.10008.1.2.5
JPEGProcess14SV1TransferSyntax	1.2.840.10008.1.2.4.70
JPEGProcess1TransferSyntax	1.2.840.10008.1.2.4.50
JPEGProcess2_4TransferSyntax	1.2.840.10008.1.2.4.51

Table 3.2.4 Supported Transfer Syntaxes.

3.3 Association Establishment Policies

3.3.1 General

syngo US Workplace 2.0 will attempt to establish an association whenever it is invoked with valid parameters (including a known destination and valid DICOM format files, containing valid group 0002 header, abstract syntax and transfer syntax).

syngo US Workplace 2.0 limits the maximum PDU size to 16KB.

3.3.2 Number of Associations

There is no inherent limit to the number of associations other than limits imposed by the computer's operating system.

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3.3.3 Asynchronous Nature

syngo US Workplace 2.0 allows a single outstanding operation at a time on any association. However, multiple associations can exist and operate simultaneously.

3.3.4 Implementation Identifying Information

syngo US Workplace 2.0 has the following implementation identifying parameters:

- Implementation Class UID: **1.2.276.0.7230010.3.0.3.5.4**
- Implementation Version Name: **OFFIS_DCMTK_354**
- All DICOM UIDs generated by *syngo* US Workplace 2.0 begin with the registration number: **1.2.276.0.48**

3.3.5 Association Initiation Policy

syngo US Workplace 2.0 0 can initiate associations only to the AETitles registered by the *syngo* US Workplace 2.0 application.

An association will be initiated in the following cases:

- *syngo* US Workplace 2.0 sends a verification request to a remote DICOM host.
- *syngo* US Workplace 2.0 sends a query request to a remote DICOM host.
- *syngo* US Workplace 2.0 sends a move request to a remote DICOM host.
- *syngo* US Workplace 2.0 sends a store request to a remote DICOM host.
- *syngo* US Workplace 2.0 stores one or more DICOM files to a remote DICOM host (this happens at incoming move requests).

If *syngo* US Workplace 2.0 initiates an association for storing files, it offers the original transfer syntax of a DICOM file followed by the three uncompressed transfer syntaxes. It supports decoding but does not support encoding of DICOM files. *syngo* US Workplace 2.0 can send more than one file on an association, if the files have the same original transfer syntax.

At associations for verification, query or move requests, *syngo* US Workplace 2.0 offers the uncompressed transfer syntaxes.

3.3.5.1 Verification SCU Conformance

- **Associated Real World Activity - Verification**

syngo US Workplace 2.0 will issue **Verification** requests in order to check if an SCP has the ability to receive DICOM requests.

- **Presentation Context - Verification**

syngo US Workplace 2.0 will use any of the following Presentation Contexts for Verification.

SOP Class	Transfer Syntax	Role	Extended Negotiation
All Table 3.2.1	Uncompressed transfer syntaxes from Table 3.2.4	SCU	None

Table 3.3.1 Presentation contexts for Verification.

- **SOP Specific Conformance - Verification**

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- *syngo* US Workplace 2.0 provides standard conformance to the DICOM **Verification** Service Class.

3.3.5.2 Storage SCU Conformance

- **Associated Real World Activity - Storage SCU**

syngo US Workplace 2.0 will transmit DICOM files that have either been created by our application or imported from a DICOMDIR or received via DICOM network services. The transmission of the files is invoked by user interaction: Select the study and choosing the *Copy to DICOMHOST* option in the study selection dialog. All DICOM files (except non-DICOM files like images and reports) of this study will be stored to the selected DicomHost.

syngo US Workplace 2.0 can be configured to send an echo-request before each store request.

For each stored file, the storage status and possible failure reasons will be logged to the *syngo* US Workplace 2.0 logfiles.

- **Proposed Presentation Contexts - Storage SCU**

syngo US Workplace 2.0 can negotiate for the presentation contexts listed in Table 3.2.2.

SOP Class	Transfer Syntax	Role	Extended Negotiation
All Table 3.2.2 (or the list of SOP classes configured in the inifile)	All Table 3.2.4 (or only compressed transfer syntaxes, as configured in the inifile)	SCU	None

Table 3.3.2 Presentation contexts for storage.

- **SOP Specific Conformance - Storage SCU**

syngo US Workplace 2.0 conforms to the DICOM Storage Service Class as an SCU.

3.3.5.3 Find SCU Conformance

- **Associated Real World Activity - Find SCU**

syngo US Workplace 2.0 can send find requests to an SCP. Find requests are invoked by user interaction:

Go to the Query/Retrieve tab, select the desired DICOM SCP host in the “Import from” drop-down list, set the query filters and press Search.

- **Proposed Presentation Contexts - Find SCU**

syngo US Workplace 2.0 can negotiate for the following presentation contexts for Find:

SOP Class	Transfer Syntax	Role	Extended Negotiation
All Table 3.2.3 SCU Find	Uncompressed transfer syntaxes from Table 3.2.4	SCU	None

Table 3.3.3 Presentation contexts for find.

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- **SOP Specific Conformance - Find SCU**

SOP classes of the Query/Retrieve Service Class are implemented via the DIMSE C-FIND and C-MOVE services as defined in Part 7 of the DICOM standard.

A C-ECHO request is sent before each C-FIND to ensure that the SCP host is available. If no response to the echo request is received, the find request will not be sent.

syngo US Workplace 2.0 usually issues query requests on Study level.

Queried fields at study level are:

- Patient ID (single value and wildcard matching)
- Patient Name (single value and wildcard matching)
- Patient Birth Date (single value matching)
- Study Date (universal matching)
- Study Description (single value and wildcard matching)

3.3.5.4 Move SCU Conformance

- **Associated Real World Activity - Move SCU**

syngo US Workplace 2.0 will initiate retrieve requests to an SCP. Move requests are invoked by user interaction: after a find request has been executed, one or more studies can be selected from the resulting study list. The Import button executes a C-MOVE request for the selected studies.

- **Proposed Presentation Contexts - Move SCU**

syngo US Workplace 2.0 can negotiate for the following presentation contexts for Move.

SOP Class	Transfer Syntax	Role	Extended Negotiation
All Table 3.2.3 SCU Move	Uncompressed transfer syntaxes from Table 3.2.4	SCU	None

Table 3.3.4 Presentation contexts for Move.

- **SOP Specific Conformance - Move SCU**

syngo US Workplace 2.0 will try to establish an association with the move destination specified in the C-MOVE request. One or more of the Presentation Contexts listed in the above table may be negotiated in this association.

syngo US Workplace 2.0 usually issues move requests on Study level with Study Root Information Model.

Usual Move-request fields at study level are:

- Patient ID (single value and wildcard matching)
- Patient Name (single value and wildcard matching)
- Patient Birth Date (single value matching)
- Study Date (universal matching)

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- Study Description (single value and wildcard matching)

3.3.6 Association Acceptance Policy

The AE title of *syngo* US Workplace 2.0 can be configured using the GUI interface from the Server Manager (described in the Server Manager manual).

syngo US Workplace 2.0 accepts associations to allow remote DICOM hosts to:

- Send verification requests to *syngo* US Workplace 2.0.
- Store images and structured reports to *syngo* US Workplace 2.0.

syngo US Workplace 2.0 places no limitations on who may connect to it, nor on the number of simultaneous connections it will support. When *syngo* US Workplace 2.0 accepts an association, it will receive any DICOM C-ECHO, C-STORE requests coming on that association that conform to the negotiated terms.

3.3.6.1 Verification SCP Conformance

- **Associated Real World Activity - Verification**

syngo US Workplace 2.0 will respond to **Verification** requests in order to provide an SCU with the ability to determine if *syngo* US Workplace 2.0 is receiving DICOM requests.

- **Presentation Context Table - Verification**

syngo US Workplace 2.0 will accept any of the following Presentation Contexts for Verification:

SOP Class	Transfer Syntax	Role	Extended Negotiation
All Table 3.2.1	Uncompressed transfer syntaxes from Table 3.2.4	SCP	None

Table 3.3.5 Presentation contexts for Verification.

- **SOP Specific Conformance - Verification**

syngo US Workplace 2.0 provides standard conformance to the DICOM **Verification** Service Class. *syngo* US Workplace 2.0 returns one of the following status codes:

Service Status	Further Meaning	Protocol Codes	Description
Success	Success	0000	Operation performed properly.

Table 3.3.6 Verification status codes.

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3.3.6.2 Storage SCP Conformance

- **Associated Real World Activity - Storage**

syngo US Workplace 2.0 will store all DICOM files that are sent to it from an SCU. It extracts patient, study and series information from the stored files and writes this information into its database.

syngo US Workplace 2.0 will accept any of the following Presentation Contexts for Storage.

SOP Class	Transfer Syntax	Role	Extended Negotiation
All from Table 3.2.2	Table 3.2.4	SCP	None

Table 3.3.7 Presentation contexts for storage.

- **SOP Specific Conformance - Storage**

syngo US Workplace 2.0 provides standard conformance to the DICOM **Storage** Service Class. No elements are discarded or coerced by *syngo* US Workplace 2.0. In the event of a successful **C-STORE** operation, the DICOM file has been written to the database. *syngo* US Workplace 2.0 implements no DICOM **Storage Commitment** (see 2.2.2). This means that *syngo* US Workplace 2.0 may delete the stored files at a later time. *syngo* US Workplace 2.0 can display only DICOM files of Image and Structured Report types, but all the stored files of a study can be retrieved later if they were not already deleted.

Note: Each DICOM SCU needs a licence for *syngo* US Workplace 2.0 to perform a C-Store request. Without a licence the connection between SCU and SCP is released. The licence administration is not a DICOM issue and is not handled in this document. For more information on the licensing please refer to the *syngo* US Workplace 2.0 manual.

syngo US Workplace 2.0 returns one of the following status codes:

Service Status	Further Meaning	Protocol Codes	Description
Success	Success	0000	Operation performed properly.
Failed	Failed	C000	The operation was not successful.
Refused	Out of resources	A700	Indicates that there was not enough storage space to store the image.
Error	Cannot understand	C005	Indicates that the Data Set cannot be parsed into elements.
Error	Data set does not match SOP Class	A900	Indicates that the Data Set does not encode an instance of the SOP Class specified.

Table 3.3.8 C-STORE status codes.

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- **Presentation Context Acceptance Criterion - Storage**

syngo US Workplace 2.0 will accept any number of **Storage** Presentation Contexts per association request. Any Abstract Syntax may be specified more than once in an association request, if the Transfer Syntaxes differ between the Presentation Contexts.

- **Transfer Syntax Selection Policies - Storage**

syngo US Workplace 2.0 supports all transfer syntaxes listed in Table 3.2.4. At negotiation *syngo* US Workplace 2.0 accepts the last common transfer syntax from Table 3.2.4. Extended negotiation is not supported. *syngo* US Workplace 2.0 cannot perform image conversion.

4 Communications profiles

4.1 Supported Communication Stacks

syngo US Workplace 2.0 provides DICOM V3.0 TCP/IP Network Communication Support as defined in Part 8 of the DICOM Standard.

4.2 TCP/IP Stack

syngo US Workplace 2.0 inherits its TCP/IP stack from the computer system upon which it executes.

4.2.1 Physical Media Support

syngo US Workplace 2.0 is indifferent to the physical medium over which TCP/IP executes; it inherits the medium from the computer system upon which it executes.

5 Extensions, Specializations, Privatizations

Not applicable.

6 Configuration

Mapping from Application Entity Title to Presentation Address is provided by the database and configured within the *syngo* US Workplace 2.0 application.

7 Support for Extended Character Sets

syngo US Workplace 2.0 supports the following character sets:

ISO-IR 100: Latin Alphabet No. 1

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8 Document History

Revision	Date	Author	Comments
1	15-Mar-2007	Dan Russell	Creation

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